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Mowry, H. H.

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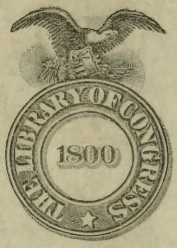

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THE NORMAL DAY'S WORK OF FARM IMPLEMENTS, WORKMEN, AND CREWS IN WESTERN NEW YORK.

By H. H. Mowry, *Agriculturist.*

CONTENTS.

	Page.		Page.
A normal day's work	2	Threshing wheat	7
Source of data	2	Handling manure	8
Local conditions	3	Operations on the corn crop	8
Plowing	3	Operations on the bean crop	10
Harrowing	4	Haying operations	11
The land roller	6	Operations on the cabbage crop	12
Grain crop operations	6	Operations on fruit crops	14

Every farmer needs to have a definite idea as to what constitutes a fair day's work in each of his operations, so that the annual work may be planned intelligently and carried out on time. In order to obtain results from hired help it is necessary to know what each man and team should accomplish daily. The same knowledge will serve to prevent the overtaxing of horses and the crowding of men beyond a fair amount of service. Where hired help understand that a fair and definite amount of work, not in excess of what can be performed day after day without impairing health or efficiency, is normally expected, the necessity of personal supervision by the employer is reduced. Compensation can also be asked and paid on the basis of this reasonable service and the relations of all concerned be made more satisfactory.

Knowledge of what constitutes a fair day's work in a given locality, based upon the experience of many neighbors, is a valuable guide to the individual farmer. The data of this bulletin, a summary of which is given in Table I, represent the experience of several hundred practical farmers in western New York, and has application to the conditions which existed there. Knowledge of what is accomplished by farmers in other localities is also of value to those in western New York, because for more operations other sections of the United States have worked out more efficient methods of doing work and handling men,

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horses, and implements than those in vogue in this section. Hence, in discussing the various operations in the following pages, comparisons are made between what farmers in New York accomplish and the average for the entire United States.

A NORMAL DAY'S WORK.

In the following summary table is shown the mean daily duty of implements, workmen, and crews for various farm operations, averages for western New York, as determined by this investigation, being compared with averages for the entire United States, as determined by a previous survey.[1] In making these comparisons those sizes of implements and crews were taken which are most generally used and for which the largest numbers were reported.

TABLE I.—*Summary and comparisons.*

Operation.	Daily duty.		Operation.	Daily duty.	
	Western New York average.	United States average.[1]		Western New York average.	United States average.[1]
Walking plow:	*Acres.*	*Acres.*	Setting up corn after corn binder, 1 man	3.4	4.0
2 horses, 12-inch	1.65	1.76	Corn binder:		
3 horses, 14-inch	1.78	2.32	2 horses	5.3	6.6
Sulky plow, 3 horses, 14-inch	2.20	2.40	3 horses	5.7	7.3
Spike-tooth harrow:			Mowing hay (5-foot cut)	9.0	8.9
2 horses, 8-foot	13.0	10.8	Raking hay (10 feet wide):		
3 horses, 10-foot	17.3	15.3	1 horse	15.0	16.3
Spring-tooth harrow:			2 horses	17.6	17.9
2 horses, 6-foot	9.0	7.4	Tedding hay, 2 horses	14.3	14.5
3 horses, 6-foot	10.2	8.2	Cocking hay, 1 man	6.3	6.3
4 horses, 8-foot	14.7	13.1	Hauling hay from field to barn, 2 men and 2 horses:		
Disk harrow, fresh plowed land:			Unloading by hand	4.9	4.4
2 horses, 6-foot	7.5	7.2	Unloading with sling	6.6	6.1
3 horses, 6-foot	8.2	7.5			
4 horses, 8-foot	11.1	12.8	Picking apples:	*Bushels.*	*Bushels.*
Land roller, 2 horses, 8-foot	13.8	13.2	Yield 1 to 10 bushels	52.3	34.0
Grain drill, 2 horses, 6-foot	10.0	8.8	Yield over 10 bushels	70.0	44.8
Grain binder, 3 horses, 6-foot	10.4	11.1	Husking corn from shock, 1 man	32.2	45.9
Setting up bound grain, 1 man	7.5	9.3		715.3	679.0
Planting corn:			Threshing wheat from shock, 10 men and 6 horses	*Acres.*	*Acres.*
Hand planter, 1 man	3.4	4.4		25.1	29.5
1-horse, 1-row	5.2	6.9			
2-horse, 2-row	10.7	13.6		*Loads.*	*Loads.*
Cultivating:			Hauling manure with spreader	14.7	13.1
1-horse	4.1	4.4			
2-horse	6.8	6.6			
Cutting corn by hand, 1 man, yield 41–60 bushels	1.1	1.5			

[1] U. S. Department of Agriculture Bulletin No. 3.

SOURCE OF DATA.

The information made available in this bulletin was obtained from farmers in Wayne, Ontario, Monroe, Genesee, Livingston, Orleans, and Niagara Counties. A circular of inquiry afforded an opportunity for experienced farmers to record their knowledge as to what constitutes a fair day's work under their conditions, and these records were averaged and assembled in the tables which follow.

[1] U. S. Department of Agriculture Bulletin No. 3.

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LOCAL CONDITIONS.

Farm land in the section where these data were obtained is somewhat rolling, but not to an extent to reduce appreciably the average amount of work that can be done daily. Some of the heavier soils of the Dunkirk series can not be plowed as rapidly as can the more loamy soils of the Middle West. The presence of more or less stone throughout the section also operates to reduce the amount of work that can be done daily with plows. There are no local reasons why farm implements that are drawn over the land, like mowers, binders, rakes, etc., should not perform as much work daily here as anywhere. The horses used in western New York average 1,211 pounds in weight. The average net day in the field in spring and summer work was found to be 9 hours and 38 minutes, and in haying and harvest it is 9 hours and 49 minutes. This net day excludes the time going and coming and the noon period, and represents only the time in action on the various operations.

PLOWING.

Table II gives the average performance of the walking plow with 2-horse and 3-horse teams working on sod and on stubble. From 10 to 15 per cent more land can be plowed in stubble than on sod where only two horses are used. With 3-horse teams, there is little difference between the work on sod and on stubble. Breaking sod is work that is too heavy for two horses. With two horses, the depth plowed ranges from 6 to 6½ inches on stubble and is 6 inches on sod. With three horses, the plowing on sod ranges from 6½ to 7¼ inches deep and on stubble from 7 to 7½ inches deep. The majority of farmers use three horses when breaking sod and two horses when plowing stubble. The 3-horse teams permit the use of wider plows and deeper plowing. The farmers in western New York accomplish only about 80 to 85 per cent as much daily in their plowing work as does the average farmer in the United States. This is doubtless due to the heavy character of the local soils.

TABLE II.—*A fair day's work for walking plows with 2-horse and 3-horse teams on sod and on stubble.*

Horses.	Width.	On sod.		On stubble.	
		Acres.	Number of farms averaged.	Acres.	Number of farms averaged.
	Inches.				
2	10	1.46	124	1.66	220
2	12	1.47	217	1.65	315
2	14	1.48	111	1.72	135
3	10	1.70	86	1.82	52
3	12	1.74	225	1.85	146
3	14	1.78	198	1.93	140
3	16	1.90	45	1.95	15

In Table III is shown the duty of sulky plows in western New York working on sod and on stubble. Few New York farmers attempt to operate sulky plows with two horses. The load is entirely too great for two horses, and only poor plowing can be done with less than three horses. The 14-inch plow is most commonly used on the sulky in this section, while the 16-inch is the most common for the average of all farmers in the country. In the soils of New York the 14-inch sulky is an ample load for three horses. From 5 to 10 per cent more work can be done on stubble than on sod with the sulky plow.

TABLE III.—*A fair day's work for sulky plows drawn by three horses on sod and on stubble.*

Horses.	Width.	On sod.		On stubble.	
		Acres.	Number averaged.	Acres.	Number averaged.
	Inches.				
3	12	1.95	86	2.11	86
3	14	2.08	105	2.20	115
3	16	2.26	51	2.37	42

HARROWING.

The spike-tooth or smoothing harrow can be operated with 2-horse or 3-horse teams in a wide range of widths, as it is an implement of comparatively light draft. Three horses accomplish from 10 to 15 per cent more work on the same width of harrow than two horses do. Table IV gives the average duty for the spike-tooth harrow for widths ranging from 5 to 12 feet for 2-horse and 3-horse teams.

TABLE IV.—*A fair day's work for the spike-tooth harrow with 2-horse and 3-horse teams.*

Width.	2-horse teams.		3-horse teams.	
	Acres.	Number averaged.	Acres.	Number averaged.
Feet.				
5	11.2	15	11.0	2
6	11.1	87	11.9	27
7	12.0	102	13.2	33
8	13.0	199	14.1	75
9	13.8	43	16.4	48
10	16.1	102	17.3	80
12	14.8	20	19.1	38

Where two horses are required to draw widths greater than 10 feet they appear to be overloaded so that their daily efficiency is reduced.

The spring-tooth harrow is used to do the hard, preliminary work of fitting the land after plowing. It is adapted to soils which are too

hard, stony, lumpy, or so occupied with stumps as to render the spike-tooth or disk harrow ineffective. On account of its heavy draft it can not be used in such extreme widths as can the spike-tooth harrow. Three horses are more suitable than two on even the narrowest widths, while a 4-horse team finds an 8-foot or 9-foot spring-tooth harrow a heavy load.

TABLE V.—*A fair day's work for spring-tooth harrows with teams of two, three, and four horses.*

Width.	2-horse teams.		3-horse teams.		4-horse teams.	
	Acres.	Number averaged.	Acres.	Number averaged.	Acres.	Number averaged.
Feet.						
6	9.0	36	10.2	33	.....	.....
7	9.3	6	10.9	21	.....	.....
8	9.7	7	13.3	10	14.7	3
9	.....	.....	.....	.....	18.0	8

In Table VI is shown the daily averages for the disk harrow with 2-horse, 3-horse, and 4-horse teams working on fresh-plowed and on well-packed land, respectively. It appears that with two and three horses, increasing the width of the disk harrow does not result in any great increase in acreage disked. This is more true on fresh-plowed than on well-packed land. Where four horses are used, increasing the width results in more marked increases in daily accomplishment. The heavy draft of the disk harrow accounts for the lack of increase in results with increasing width where 2-horse and 3-horse teams are used. The implement is an overload, as a rule, for anything less than four horses; so that any increase in width with the smaller units of power results in less speed and mileage per day.

TABLE VI.—*A fair day's work for disk harrows using teams of two, three, and four horses, respectively.*

Horses.	Width.	On fresh-plowed land.		On well-packed land.	
		Acres.	Number averaged.	Acres.	Number averaged.
	Feet.				
2	5	7.1	60	8.4	61
2	6	7.5	152	9.1	149
2	7	7.8	44	9.6	44
2	8	7.8	38	10.0	38
3	5	8.1	44	9.4	44
3	6	8.2	205	9.8	201
3	7	8.1	90	9.9	89
3	8	8.8	48	10.3	49
4	6	7.6	16	9.1	155
4	7	9.8	15	12.2	15
4	8	11.1	25	13.3	25

THE LAND ROLLER.

The land roller (Table VII) is an implement of relatively light draft, and two horses operate a wide range of width. Its limit in width is determined by the awkwardness of the larger sizes rather than by their draft. The table shows an increasing acreage with increasing width, although the increase in results is not in proportion to the increase in width.

TABLE VII.—*A fair day's work for the land roller drawn by two horses.*

Width.	Acres.	Number averaged.
Feet.		
6	11.4	76
7	12.5	255
8	13.8	588
9	14.0	117
10	14.6	136
12	15.3	23

GRAIN CROP OPERATIONS.

From Table VIII it is seen that nearly all farmers in western New York use a grain drill sowing 11 rows, or a strip from 6 to 6½ feet wide. With this size drill the grain and grass can be sown regularly, and in addition corn can be drilled two rows at a time, 42 inches apart, or three rows at a trip, 35 inches apart. Beans can also be drilled 28 inches apart, sowing three rows at each trip. The daily acreage planted for drills having 9, 10, and 11 tubes is shown in the table.

TABLE VIII.—*A fair day's work for grain drills drawn by two horses.*

Number of drill rows.	Acres.	Number averaged.
9	9.2	95
10	9.6	67
11	10.0	951

Table IX gives the duty of the grain binder in western New York. Four-horse teams are seldom used in this section, and the smaller widths are often drawn by two horses. The 6-foot binder and three horses are most commonly used. The 7-foot binder is too heavy for three horses.

TABLE IX.—*A fair day's work with the grain binder in western New York, using 2-horse and 3-horse teams.*

Horses.	Width.	Acres.	Number averaged.
	Feet.		
2	5	7.6	16
2	6	9.3	71
3	5	9.6	73
3	6	10.4	901
3	7	11.3	83

In Table X is shown the average acres of grain that can be set up in shocks by one man after a grain binder. The bulk of the straw influences the daily acreage to some extent.

TABLE X.—*A fair day's work for a man setting up grain in shocks after the grain binder.*

Yield.		Acres.	Number averaged.
Straw.	Grain.		
Tons.	*Bushels.*		
1.3	20	7.7	278
1.4	25	7.6	380
1.6	30	7.4	313
1.7	35	7.3	25

THRESHING WHEAT.

The amount of grain threshed daily is determined by the yield of the crop more than by any other condition. Table XI gives the daily duty of average crews in threshing wheat from shock in western New York. About 25 acres is a fair day's work, irrespective of yield, in threshing from shock.

TABLE XI.—*Threshing wheat from shock—A fair day's work with average crews.*

Yield.	Crew.		Bushels daily.	Acres daily.	Number averaged.
	Men.	Horses.			
Bushels.					
0–20.....	8 or 9	4 or 6	561.7	24.3	124
21–30.....	9 or 10	6	715.3	25.1	244
31 and over...	10 or 11	4 or 6	909.8	25.3	22

Table XII gives the duty of average crews in threshing from stack or in barn, both for wheat and for oats. The yield here is the controlling element in the daily output. The crews reported ranged from 5 to 18 men. In this operation, scarcity of help makes it necessary at times to operate with too small a crew, while at other times, where the neighbors help each other, more men are available than are needed. A crew of 8 or 10 men should be ample if the grain is stacked or stored so as to be convenient to the machine.

TABLE XII.—*Threshing wheat and oats from stack or barn—Normal output of average crews.*

Crew.		Wheat.		Oats.		Number averaged.
Men.	Horses.	Yield.	Bushels.	Yield.	Bushels.	
8 or 9	2 or 4	20	733	35	1,096	97
9 or 10	2 or 4	25	855	45	1,269	107
9 or 10	2 or 4	30	914	55	1,340	124

HANDLING MANURE.

Table XIII shows the normal accomplishment to be expected from a manure spreader operated by one man and using 2-horse and 3-horse teams, respectively. The great majority of farmers find three horses necessary for the operation of a spreader. The advantage of the spreader is realized in more even distribution of manure over the field, in the shorter time required to unload, and in the greater ease of doing the unloading by horsepower than by man power. It takes about two and one-half times as long to unload by hand as with the spreader. There is no advantage in favor of the spreader in the matter of loading.

Manure carriers running on overhead tracks in the barn have largely reduced the laborious work of removing manure from farm buildings, while the spreader has transferred the work of spreading from man to horse. No mechanical device, designed to load manure from the yard to the wagon or spreader, has yet found general adoption on farms. Farmers can eliminate the work of handling manure from barnyards by providing a low-wheeled, low-priced wagon into which the manure from the barn carrier can be emptied as it comes from the stable. The manure spreader can also be set outside, so as to receive the contents of the carrier. By hauling the loaded wagon or spreader to the field as soon as filled, there need be no accumulation of manure in the barnyard, the most laborious operation of loading from the ground by hand is eliminated, the manure is handled and lifted but once into the carrier, and goes directly to the field with a minimum of loss by leaching.

TABLE XIII.—*A fair day's work in handling manure with a manure spreader drawn by two and three horses respectively.*

Horses.	Rods hauled.	Pounds in load.	Loads hauled.	Acres covered.	Number averaged.
2	61.2	2,317	14.5	1.7	123
3	70.4	2,689	14.7	1.8	355

OPERATIONS ON THE CORN CROP.

Table XIV gives the normal efficiency of hand planters, 1-row and 2-row planters, and the grain drill in planting corn. The hand planter is about 60 per cent as efficient as the 1-horse planter, one-third as efficient as the 2-row planter, and one-fourth as rapid as the grain drill. Corn is planted with the grain drill in this section more generally than with the special planters.

TABLE XIV.—*A fair day's work with the implements used in planting corn.*

Implement.	Width of rows.	Acres daily.	Number averaged.
	Inches.		
Hand planter	36	2.9	74
	42	3.4	113
One row, 1-horse planter	36	4.6	62
	42	5.2	93
Two rows, 2-horse planter	36	9.1	84
	42	10.7	124
Grain drill, 2 horses	36	11.3	192
	42	11.6	533

Table XV indicates that the 2-horse walking cultivator is about 50 per cent more efficient than the 1-horse cultivator, and the 2-horse riding cultivator is about 75 per cent more efficient than the 1-horse type. The 1-horse walking cultivator is being displaced by the 2-horse riding type, since the extra horse on the latter is more economical of man time.

TABLE XV.—*A fair day's work in cultivating corn.*

Horses used.	Type of cultivator.	Acres cultivated daily.	Number averaged.
1	Walking	4.1	1,077
2	do	6.2	560
2	Riding	7.1	1,133

In Table XVI the average acreage of corn cut by one man working with a corn knife is shown for increasing yields in terms of ears per acre. About one acre is a good day's work where the yield is over 80 bushels, and one and one-third acres can be cut where the yield is less than 40 bushels. The averages for western New York for this operation are about 25 per cent less than the normal for the United States, the yield being the same. This may be accounted for in part by the fact that corn in New York is planted in drills instead of in hills, requiring more blows of the knife to cut a given number of stalks; also because a short-handled sickle is used in the East which requires much stooping, while a long straight-bladed knife is used in the West, which permits the work to be done while standing practically erect.

TABLE XVI.—*A fair day's work for one man in cutting corn by hand.*

Range of yield (bushels of ears).[1]	Acres cut daily.	Number averaged.
Under 40	1.3	47
41–60	1.2	187
61–80	1.1	402
81 and over	1.1	580

[1] In Tables XVI, XVII, and XIX the yield of corn is expressed in bushels of ears, this being the customary method of reckoning corn yields in western New York. To convert to bushels of shelled corn divide by 2.

Where corn has been cut by a corn binder, a man's efficiency in setting it up into shocks is multiplied by 3 over what he can accomplish in cutting and setting up by hand. Table XVII gives the daily duty with increasing yields, there being a slight falling off as the yield per acre becomes heavier.

TABLE XVII.—*A fair day's work for a man setting up corn after the corn binder.*

Yield per acre (bushels of ears).	Acres per day.	Number averaged.
50	3.5	102
75	3.4	165
100	3.3	474

From Table XVIII it appears that a very large proportion of farmers use three horses on the corn binder. The amount accomplished daily is about 20 per cent less than the average for the United States. The heavier average yields of corn in New York, as compared with the general average, in part account for this, corn not being grown so extensively here as elsewhere, but more intensively.

TABLE XVIII.—*A fair day's work with the corn binder drawn by two and three horses respectively.*

Horses.	Acres cut daily.	Number averaged.
2	5.3	190
3	5.7	1,001

In husking corn from the shock in western New York, one man averages only from 65 to 75 per cent of the average for the United States, about 35 bushels per day being the normal amount husked in this section. Table XIX gives the average bushels per day and acreage per day for the yields indicated.

TABLE XIX.—*A fair day's work for a man in husking corn from shock.*

Range of yield (bushels of ears).	Acres per day.	Bushels per day.	Number averaged.
Under 41	0.66	36.3	26
41–60	.62	32.2	122
61–80	.47	32.6	293
81 and over	.40	36.0	431

OPERATIONS ON THE BEAN CROP.

In Table XX the average daily work that should be accomplished in some of the field operations with the bean crop are shown. The beans are planted with a grain drill, cultivated with the ordinary cultivators, and harvested with a bean harvester, an implement

drawn by two horses and having two long knives, each of which cuts a row, the two rows being thrown in the center between the rows. The beans are then thrown into small piles with a pitchfork, and from time to time the piles are forked and turned over, so that the pods will dry out and cure suitably for threshing.

TABLE XX.—*A fair day's work for the operations in bean growing.*

Operation.	Horses.	Men.	Acres daily.	Number averaged.
Planting with grain drill	2	1	10.9	1,040
Harvesting with bean harvester	2	1	7.6	982
Bunching with fork		1	2.8	793
Forking with fork		1	2.7	819

In Table XXI the acreage that can be cleared in a day in hauling in the bean crop is shown for the crews commonly used in this section. Doubling the crew does not quite double the acreage cleared daily. Crews larger than two or three men are not very common, since the system of farming is such that the field work can be chiefly done with one regular hired man and members of the family.

TABLE XXI.—*A fair day's work for crews in hauling beans from field to barn.*

Crews.			Acres cleared daily.	Number averaged.
Men.	Horses.	Wagons.		
2	2	1	5.5	459
3	2	1	6.5	355
4	4	2	10.3	64
5	4	2	10.9	35
6	4	2	12.2	17

HAYING OPERATIONS.

In Table XXII is shown the daily duty of men and implements in the haying operations preparatory to hauling into the barn or stacking. The averages for mowing, raking, tedding, and cocking are substantially the same as the averages for the United States as a whole.

TABLE XXII.—*A fair day's work for implements, men, and teams used in making hay.*

Operation.	Men.	Horses.	Width.	Acres daily.	Number averaged.
			Feet.		
Mowing	1	2	4½	8.3	32
			5	9.0	974
			6	10.2	195
Raking	1	1	10	15.0	175
		2	10	17.6	424
Bunching	1	1	10	13.1	89
		2	10	16.3	164
Tedding	1	2		14.3	658
Cocking	1			6.3	1,044

Table XXIII gives the daily duty of the crews ordinarily used in western New York in hauling in hay from the field and unloading by hand. In this section, which is not an extensive haying region, one team only is used in a large majority of cases. Increasing the crew does not result in increasing the amount done in the same proportion, and odd men are the least valuable additions to the crew.

TABLE XXIII.—*A fair day's work with crews used in hauling hay from field to barn and unloading by hand.*

Crews.			Tons daily.	Acres daily.	Number averaged.
Men.	Horses.	Wagons.			
2	2	1	7.7	4.9	342
3	2	1	8.8	5.3	509
3	4	2	10.0	5.6	11
4	4	2	13.3	7.7	50
5	4	2	14.8	8.7	65

In Table XXIV is shown the normal duty of crews in hauling in hay where the unloading is done with the hay sling, or hay fork. Unloading with this inexpensive device increases the efficiency per day about 45 per cent. The farmers in this section are, on the average, from 5 to 10 per cent more efficient in hauling in their hay than the average farmer of the country. The efficiency of the crews shown in Tables XXIII and XXIV can be increased about 10 per cent by the use of the hay loader in the field. Where stacking is done in the field, or where the hay field is within 60 rods of the barn, hay can be put away about 75 per cent more rapidly with the western sweep rakes than with wagons and racks.

TABLE XXIV.—*A fair day's work for crews hauling hay from field to barn and unloading with hay sling or fork.*

Crews.			Tons daily.	Acres daily.	Number averaged.
Men.	Horses.	Wagons.			
2	2	1	10.7	6.6	290
3	2	1	12.6	7.5	496
3	4	2	14.9	9.3	9
4	4	2	17.5	9.8	58
5	4	2	20.1	11.7	82

OPERATIONS ON THE CABBAGE CROP.

In Table XXV the averages for planting cabbage with a transplanter have been brought together for increasing sizes of crews. In all cases there are three men on the transplanter, the additional men and horses being used to bring the plants and water to convenient points for the transplanter. The efficiency per day is not greatly

increased by additional men, two men and two horses adding only half an acre, or about 15 per cent to the amount done daily. Two additional men and an extra team are used more frequently, however, than are smaller numbers, these being sufficient when properly directed to keep the transplanter constantly at work.

TABLE XXV.—*A fair day's work in setting cabbage, using three men on the transplanter and additional men and horses as indicated.*

Extra men.	Extra horses.	Acres planted daily.	Number averaged.
.....	.....	3.4	53
1	.....	3.4	42
2	.....	3.5	65
1	1	3.5	47
2	1	3.7	83
1	2	3.8	30
2	2	4.0	155

Table XXVI shows the average number of loads and tons of cabbage that can be harvested daily and unloaded on the farm. The smaller crews are most frequently used. The larger crews do not accomplish results in proportion to their size. Two men and two horses and four men and four horses are the most efficient per man and per horse.

TABLE XXVI.—*A fair day's work for crews harvesting cabbage and sorting in the barn.*

Crews.			Loads daily.	Tons daily.	Number averaged.
Men.	Horses.	Wagons.			
2	2	1	7.4	9.8	142
3	2	1	8.0	11.4	107
4	2	1	9.4	13.5	50
4	4	2	12.3	16.4	48
6	4	2	14.9	20.7	16

Where the cabbage is hauled directly from the field to market, the number of loads that can be handled daily with the respective crews is as shown in Table XXVII. On account of its great weight and bulk, cabbage is not grown to any considerable extent on farms over 5 or 6 miles from market, the greater part of this crop being produced on farms that are from 2 to 4 miles from shipping point.

TABLE XXVII.—*A fair day's work for crews harvesting cabbage and hauling directly to market—loads per day.*

Crews.			Miles to Market.									
			1		2		3		4		5	
Men.	Horses.	Wagons.	Loads.	Number averaged.	Loads.	Number averaged.	Loads.	Number averaged.	Loads.	Number averaged.	Loads.	Number averaged.
2	2	1	5.1	*13*	3.9	*51*	3.1	*29*	2.5	*23*	2.5	*13*
3	2	1	5.8	*17*	4.6	*30*	3.5	*16*	3.5	*12*	2.4	*5*
4	2	1	4.7	*3*	4.7	*16*	3.6	*18*	3.5	*3*	3.6	*5*
4	4	2	10.4	*5*	6.9	*15*	6.0	*10*	4.7	*5*	4.0	*1*
6	4	2	11.3	*3*	7.0	*2*	6.5	*4*	7.0	*2*	4.1	*1*

OPERATIONS ON FRUIT CROPS.

The data for Tables XXVIII to XXXIII were obtained in western New York under conditions where orcharding is on a commercial basis and the work is well standardized. They refer to well-established orchards and the customary methods and practice which obtain among the vast majority of growers. Baldwins and Greenings predominate among the orchards and the data presented refer to trees having their general habits of growth. Trees are pruned quite regularly, few, if any, neglected orchard conditions and abnormal factors being incorporated in the averages. Fruit growers in this region necessarily know quite definitely what an average day's work should be for the various orchard operations.

In Table XXVIII are given the averages for pruning fruit trees and for thinning the fruit from apple trees where the crop is too heavy to permit the maturing of good fruit. In general, the thinning operation does not present a serious labor problem except on occasional years when a very heavy crop is set. At other times wind and storm are likely to remove even more than the excess and fruit is not thinned on that account. The data for thinning refers to the average tree in the orchard in years when thinning is necessary.

TABLE XXVIII.—*A fair day's work in pruning fruit trees and in thinning the fruit from apple trees.*

Operation.	Trees daily.	Number averaged.
Pruning apple trees (10 years old)	28.6	803
Pruning apple trees (30 years old)	12.6	769
Thinning out surplus apples (30-year trees)	12.4	528
Pruning peach trees (8 years old)	37.7	449

In Table XXIX is shown the number of bushels of peaches that one man can pick daily where the yield per tree varies. The better the crop per tree the more it is possible to pick daily. In making these reports farmers reported those yields per tree regarding which they had the best record as to the efficiency of the picking. The larger yields are most readily reported because the most unusual. The yields per tree, therefore, should not be taken as representing the average yield of peaches. Two or 3 bushels per tree is the most common yield.

TABLE XXIX.—*A fair day's work for one man in picking peaches from trees of average size, according to yield per tree.*

Yield per tree (bushels).	Bushels picked per day.	Number averaged.
1	22.2	17
2	33.6	101
3	34.7	99
4	38.3	50
5	39.8	50
8	45.9	13
10	54.3	7

From Table XXX it appears that about the same number of peaches can be handled daily by one man packing into baskets as can be picked from the tree. In general, the smaller the basket, the less the quantity that can be packed in a day. The $\frac{1}{3}$-bushel basket is most commonly used. Mechanical graders for sorting peaches were almost unknown in this area at the time these data were collected. The work covered by the tables, therefore, refers to methods which are entirely manual.

TABLE XXX.—*A fair day's work for one man in packing peaches in baskets.*

Size of basket (bushels).	Number of baskets daily.	Average bushels daily.	Number averaged.
$\frac{1}{4}$	88.2	22.1	17
$\frac{1}{3}$	97.7	32.6	266
$\frac{1}{2}$	79.5	39.7	44
1	57.6	57.6	15

Table XXXI gives the daily duty of one man in picking apples. The larger the yield, the greater the quantity that can be picked in a day. Apples can be picked somewhat more rapidly than peaches. In good years pickers prefer to be paid by the bushel or barrel and work more rapidly than when paid by the day. Under average conditions in this territory the yield of apples is from 4 to 6 bushels per tree, and the average picker gathers from 20 to 25 barrels daily.

TABLE XXXI.—*A fair day's work for a man in picking apples.*

Yield per tree (bushels).	Bushels per day.	Number averaged.	Yield per tree (bushels).	Bushels per day.	Number averaged.
6	53.2	11	20	66.9	207
10	54.5	88	25	75.8	81
15	63.5	199	30	78.6	150

Mechanical devices for sorting and packing apples are seldom used in western New York. A simple barrel header operated by one man as the barrels are filled constitutes the chief mechanical aid in packing apples in this region. The same general practice prevails over the entire region, the work being done by hand.

Where apples are sorted by hand and packed in barrels, the daily amounts set out in Table XXXII should normally be accomplished.

TABLE XXXII.—*A fair day's work in sorting and packing apples with the number of hands indicated.*

Crew.		Barrels daily.	Number averaged.	Crew.		Barrels daily.	Number averaged.
Sorters.	Packers.			Sorters.	Packers.		
1	1	56.7	209	3	1	98.4	27
1	2	65.4	11	3	2	115.0	37
2	1	77.4	228	4	2	124.9	9
2	2	88.7	118				

Not many of the commercial orchards in New York are over 6 miles from market. The number of trips that can be made daily with loads of fruit for distances from 1 to 8 miles is shown in Table XXXIII. The usual load is 20 to 22 barrels of apples and 55 to 60 bushels of peaches.

TABLE XXXIII.—*A fair day's work for man and team in hauling fruit to market.*

Miles to market.	Loads per day.	Number averaged.	Miles to market.	Loads per day.	Number averaged.
1	6.3	58	4	3.0	150
1½	5.6	53	5	2.3	128
2	4.8	173	6	2.1	77
2½	4.1	79	7	1.9	29
3	3.7	210	8	1.9	17
3½	3.4	38			

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